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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/983,074	10/23/2001	Eiichi Tamaki	50099-185	8954

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EXAMINER
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PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 11/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/983,074

Applicant(s)

TAMAKI, EIICHI

Examiner

Hai C Pham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Objections***

2. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. Claim 14 recites the following limitation "said laser source emits said first laser beam linearly polarized in the direction substantially parallel to said predetermined direction", which has been set forth in claim 10 from which claim 14 is dependent.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-14 contain the trademark/trade name "Grating Light Valve™". Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a light modulating device, and, accordingly, the identification/description is indefinite.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 7-12, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kowarz et al. (U.s. 6,411,425 B1).

Kowarz et al. discloses a printing system (Figs. 18 and 19) comprising a laser source (70) for emitting a first laser beam, a first optical system (waveplate 95, Fig. 15) for converting the first laser beam into a second laser beam a Grating Light Valve (GLV 85) having a plurality of reflective elements (elongated and parallel ribbon elements

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23a, 23b patterned on reflective layer 22) arranged in a predetermined direction for converting the second laser beam into modulated signal beams, a second optical system (imaging lens 105) for directing said signal beams onto a medium (light sensitive medium 110).

Although Kowarz et al. does not explicitly disclose the second laser beam being linearly polarized in the direction parallel to the predetermined direction, it is however known in the art that the Grating Light Valve modulator is polarization sensitive, and requires proper oriented polarized incident light in order to function optimally, which explains the need of inserting the waveplate (95) in front of the Grating Light Valve modulator. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the incident polarization of the laser beam in the Kowarz et al. device such that the linear polarized laser beam is parallel to the orientation of the ribbon elements of the Grating Light Valve modulator for the purpose of obtaining an optimal modulation of the laser beam by the Grating Light valve modulator.

With regard to claims 2-3, Kowarz et al. teaches the first optical system (95) being a polarization direction converter or phase plate.

With regard to claims 4, 8, 9, Kowarz et al. discloses the claimed invention except for the peak wavelength of the laser beam ranging from 800 nm to 820 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the laser source with a peak wavelength in the above range, since it

has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Claims 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramanujan et al. (U.S. 6,084,626).

Ramanujan et al. discloses a laser printer (10) comprising a laser source (laser diode array 11) having a plurality of emitters (12) emitting a first laser beam linearly polarized at a wavelength of 830 nm, a first optical system (wave plate 29) for converting the first laser beam into a second laser beam, a Grating Light Valve (grating modulator array 40) having a plurality of reflective elements (modulator sites 43) arranged in a predetermined direction for converting the second laser beam into modulated signal beams, a second optical system (print lens 80) for directing said signal beams onto a medium (not shown, located at the media plane 90).

Although Ramanujan et al. does not disclose the wave plate (29) being a halfwave plate, Ramanujan et al. does however indicate that the grating modulator array (40) is polarization sensitive, and requires proper oriented polarized incident light in order to function optimally, thus the need for inserting the wave plate (29) prior to the grating modulator array. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the select the wave plate of Ramanujan et al. as a halfwave plate for the purpose of orienting the polarized laser beam incident upon the grating modulator array for the purpose of optimally enhancing the performance of the grating modulator array.

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With regard to claim 7, Ramanujan et al. discloses the claimed invention except for the peak wavelength of the laser beam ranging from 800 nm to 820 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the laser source with a peak wavelength in the above range, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kowarz et al. in view of Ramanujan et al.

Kowarz et al. discloses all the basic limitations of the claimed invention except for the laser source having a plurality of emitters arranged in a first direction

However, Ramanujan et al. discloses a laser printer using a laser diode array having a plurality of light emitting devices arranged in a row, whose polarized laser beams are modulated by a grating light valve modulator.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the incorporate a laser diode array as taught by Ramanujan et al. in the device of Kowarz et al. By doing so, one would provide a high-speed laser printing system.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM  
PRIMARY EXAMINER

November 15, 2002